

Attorney Docket No. QCPA454B1C1

**REMARKS**

Claims 1 to 4 are pending in the present application, of which claim 1 is independent. No amendments have been made. Applicants believe that the present application is in condition for allowance, which prompt and favorable action is respectfully requested.

**REJECTION UNDER 35 U.S.C. §103**

The Examiner rejected claims 1 and 4 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,206,824 issued to Arazi (hereinafter "Arazi") in view of U.S. Patent No. 5,365,588 issued to Bianco et al. (hereinafter "Bianco") and U.S. Patent No. 5,249,144 issued to Falk (hereinafter "Falk"). Claim 2 is rejected under 35 U.S.C. §103 as being unpatentable over Arazi in view of Bianco and Falk and in further view of U.S. Patent No. 6,560,338 issued to Rose et al. (hereinafter "Rose"). Claim 3 is rejected under 35 U.S.C. §103 as being unpatentable over Arazi in view of Bianco and Falk and in further view of U.S. Patent No. 4,959,832 issued to Bardell, Jr. (hereinafter "Bardell"). This rejection is respectfully traversed in its entirety.

To establish a prima facie case of obviousness for a claimed invention, all the claim elements must be taught or suggested by the prior art. (MPEP 2143.03)

With respect to independent claim 1, the Examiner admitted that Arazi fails to disclose performing a non-linear operation on a selected portion of shifted bits and also fails to disclose implementing modular multiplications using look-up tables, but relied upon Bianco and Falk to allegedly cure this deficiency. Applicant respectfully disagrees with the characterization of the cited references.

Bianco discusses a linear feedback shift register that provides inputs to one or more mathematically independent nonlinear output functions (col. 3, lines 24 to 28). Particularly, it

## Attorney Docket No. QCPA454B1C1

teaches providing six sets of  $N$  randomly selected taps from a working register as inputs to nonlinear output functions 80-80N (col. 3, lines 56 to 59). As such, Bianco discloses performing a non-linear operation. However, in Bianco, the non-linear operation is performed on randomly selected inputs. It does not disclose or even mention performing the non-linear operation on a selected portion of a shifted plurality of bits, wherein the selected portion is selected so that pairwise distances between elements in the selected portion are distinct values, as in independent claim 1.

Falk discusses using an optical table look-up logic to perform programmable residue arithmetic functions (col. 1, lines 53 to 60). It also does not teach or even mention performing the non-linear operation on a selected portion of a shifted plurality of bits, wherein the selected portion is selected so that pairwise distances between elements in the selected portion are distinct values, as in independent claim 1.

Moreover, none of Arazi, Bianco nor Falk, separately or combined, discloses a linear feedback shift register that is structured in accordance with a recurrence relation as in independent claim 1.

In addition, claims 2 to 4 depend from and include all the elements cited in the independent claim 1. Accordingly, Applicant submits that these claims are believed to be allowable based on their dependency from an allowable base claim as well as other novel features included therein. It should be noted that the effective filing date of Rose is not earlier than the effective filing date (priority date) of the instant application. Therefore, Rose cannot be constituted as prior art to the instant application.

Finally, upon review, Bardell does not disclose the non-linear operation or the linear feedback shift register as in independent claim 1.

Attorney Docket No. QCPA454B1C1

Since none of Arazi, Bianco, Falk nor Bardell, separately or combined, teaches all the elements of claims 1 to 4, Applicant respectfully requests the Examiner to reconsider and withdrawal the rejection under 35 U.S.C. §103 for at least the foregoing reasons.

Attorney Docket No. QCPA454B1C1


**CONCLUSION**

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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